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H2016CIP/AMDP1027US

AMENDMENTS TO THE DRAWINGS

Please replace drawing sheets for Fig. 1 and Fig. 8 with the enclosed replacement sheets.

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**REMARKS**

Claims 1-2, and 4-23 are currently pending in the subject application and are presently under consideration. Claims 1, 2, 5, 9, 11, 12, 18, 22 have been amended. Claim 3 has been cancelled. Claim 23 has been added. In addition, Figs. 1, 8 are amended and replacement drawing sheets enclosed.

Favorable reconsideration of the subject patent application is respectfully requested in view of the comments and amendments herein.

**I. Objection to Drawings**

The drawings are objected to as failing to comply with 37 CR 1.84(p)(5), because of minor informalities. Applicant's representative has amended Fig. 1 (addition of the term "Artificial Intelligence"), and Fig. 8 (addition of the term "Electric Field at Interface"). Replacement sheets for such figures are provided herein. No new matter has been added.

Moreover, it is respectfully submitted that proper reference for letter "W" of Fig. 4 is provided at page 11, line 27-29 of the specification, and withdrawal of this objection is respectfully requested.

**II. Rejection of Claims 1-22 Under 35 U.S.C §112**

Claims 1-22 stand rejected under 35 U.S.C §112, first paragraph for enablement reasons. Specifically, the Office Action cites the operation of claim 2 as not being understood. Claim 2 has been amended herein, to better describe this aspect of the invention. Page 4, last paragraph and page 10 lines 20-30 of the Specification provides examples of such system.

It is respectfully submitted that the subject claims satisfy the requirements of 35 U.S.C §112. If the Examiner believes otherwise, the Office Action should specifically point out the language of the subject claims that are not supported by the Specification. Thus, withdrawal of this rejection is respectfully requested.

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**III. Rejection of Claims 1-22 Under 35 U.S.C. §103(a)**

Claims 1-22 stand rejected under 35 U.S.C. §103(a) as being obvious over Brug *et al.* (US Patent 6,424,565).

To reject claims in an application under §103, an examiner must establish a *prima facie* case of obviousness. A *prima facie* case of obviousness is established by a showing of three basic criteria. First, there must be some suggestion or motivation, either in the art themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the cited art or to combine reference teachings. Second there must be a reasonable expectation of success. Finally, *the cited art must teach or suggest all the claim limitations. See MPEP §706.02(j). The teaching or suggestion to make the claimed combination and the reasonable expectation of success must be found in the cited art and not based on the Applicant's disclosure. See In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

The subject invention as claimed relates to programming semiconductor memory device(s) having a functional layer that changes an *impedance state*, wherein such impedance state is indicative of *information content* – (the functional zone includes passive and active layers that allow for obtaining a plurality of states for the memory cell, such as representing “0”, “1”.) For example, to read information from the memory device, a voltage or electric field can be applied thereto, and an impedance for the device measured to determine an operating state of “on” (1) or “off” (0).

In this connection, independent claim 1 recites: “*an impedance state* of the functional layer changes based on a migration of electrons or holes [...] the *impedance state* indicative of *information content* [...]”. A similar feature of “applying an external stimulus to affect an *impedance state* [...]” is recited independent claim 9. Likewise, independent claim 13 recites “controlling at least one of an *impedance state* of the cell”. Similar features of “*an impedance state* of the functional layer changes [...]”, and “means for regulating an *impedance state*” are indicated in independent claims 18, 22 respectively.

Such aspects of the claimed invention are not taught nor suggested by Brug *et al.* Brug *et al.* is directed to a memory device that operates based on *magnetic orientations*, and not an *impedance state* that varies according to interactions of a passive and active layer, as in the claimed invention. Operation of a memory cell by magnetic orientation is NOT equivalent to operating/programming a

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memory cell using an impedance state.

In view of the at least above comments, it is readily apparent that Brug *et al.* does not make obvious applicant's invention as recited in the subject claim, and this rejection should be withdrawn.

CONCLUSION

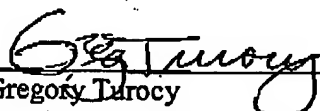
The present application is believed to be in condition for allowance in view of the above comments and amendments. A prompt action to such end is earnestly solicited.

In the event any fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063 [AMDP1027US].

Should the Examiner believe a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact applicant's undersigned representative at the telephone number below.

Respectfully submitted,

AMIN & TUROCY, LLP

  
Gregory Turocy  
Reg. No. 36,952

AMIN & TUROCY, LLP  
24<sup>TH</sup> Floor, National City Center  
1900 E. 9<sup>TH</sup> Street  
Cleveland, Ohio 44114  
Telephone (216) 696-8730  
Facsimile (216) 696-8731